

Springdale Fire Department

Policy & Procedures Manual

Volume 5 – General

Section 501 – Miscellaneous

501.6 – Apparatus Annual Pump Service Tests

All Springdale Fire Department personnel are to be familiar with pump service test procedures. The Company Officer of the apparatus shall ensure that the service test is conducted with as precise accuracy as possible.

The Division Chief of Operations shall ensure that all Engines and Ladders in service (including reserve units) shall be tested at least annually and after any extensive repairs to ensure proper operating condition.

The following testing procedures are in accordance with NFPA 1911 Service Tests of Pumps on Fire Department Apparatus. Personnel should refer to this manual for additional details to assist in performing annual pump service tests.

The test shall be performed at the pump test drafting pit located at Station 1. The unit shall be taken “out of service” during the test procedure. The SFD Pump Service Test Form shall be used to record the pump test results.

The test procedure consists of an Engine Speed Check, a Vacuum Test, and a Priming Test in addition to drafting and pumping the following flows for the durations indicated:

Test 1: 100% of Rated Capacity at 150 psi net pump discharge pressure for 20 minutes

Test 2: 70% of Rated Capacity at 200 psi net pump discharge pressure for 10 minutes

Test 3: 50% of Rated Capacity at 250 psi net pump discharge pressure for 10 minutes

Items needed for testing:

Pitot Gauge set with tips, 10’ Section of 6” hard suction hose, four 50’ sections of 3” hose, SFD Pump Test Form

Gauges Used for Testing

The master discharge gauge on the pump panel shall be used to determine the net pump discharge pressure of the pump. The master intake gauge on the pump panel shall be used to determine intake vacuum. Pitot Gauge(s) shall be used to determine nozzle pressure. Discharge rates (gpm) shall be determined using the flow chart provided in the pitot gauge kit.

Engine Speed Check

A check of the *no load governed engine speed* shall be made prior to testing. This test is to assure the governor is functioning properly for safety purposes, so that if during the pump test procedure the engine RPM’s increase drastically, no damage will occur to the engine. If the test indicates the engine speed does not equal the *no load governed engine speed* stated on the apparatus certification plate, or if the engine governor does not function properly, the cause shall be determined and corrective measures taken prior to any other testing being conducted.

Vacuum Test

A vacuum test of the pump assembly shall be conducted prior to the pumping tests. Intakes are to be capped and discharge valves closed and uncapped for this test. The pump primer will be

operated to develop a vacuum of least 22 inches of Hg (as indicated on the pump master intake gauge) within the pump assembly. This vacuum may not drop more than 10 inches of Hg within 5 minutes. The pump primer shall not be operated again during the 5 minute test. After the vacuum test period is completed, remaining vacuum within the pump system shall be vented, allowing the system to return to zero pressure/zero vacuum.

Priming Test

A priming test shall be conducted following the vacuum test. The priming test is performed after hard suction hose is connected to the pump intake and to the draft pit connection. The tank to pump line is to be closed as are all discharge valves. Time is measured from the moment the pump primer is actuated until discharge pressure is achieved (on the pump master discharge gauge) and water is being discharged onto the ground from the primer. The maximum allowable time to achieve pump prime shall be no more than 30 seconds for pumps rated less than 1500 gpm and 45 seconds for pumps rated 1500 gpm or more. The test shall be conducted with a suction lift of no more than 10 feet.

Considerations during Pump Testing

The pump operator shall be alert to changes in performance of the apparatus during the pump testing procedure. Close attention must be paid to engine temperature, oil pressure, transmission temperature, engine RPMs, discharge and intake pressures, and pump prime. If an adverse change occurs among the above items the pump test shall be terminated, and the problem corrected prior to resuming the pump test.

Failure of Apparatus to Pass Test

Completed pump test records shall be forwarded to the Division Chief of Operations. In the event of pump test failure, the failure and any suspected causes shall be reported to the Shift Commander and the Division Chief of Operations.